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STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

*Dedicated to protecting and improving the health and
environment of the people of Colorado*

P.O. Box #2927

Telluride, Colorado 81435

Phone: (303) 728-5487



Roy Romer
Governor

Patricia A. Nolan, MD, MPH
Executive Director

May 24, 1995

Ms. Pat Smith
Site Assessment Manager
U.S. EPA, Superfund Technical Section
999 18th Street - Suite 500
8-HWM-SM
Denver, Colorado 80202-2466

RE: ANIMAS DISCOVERY

Dear Pat:

Attached, please find a copy of the Animas Discovery Report.

Please contact me if you have any questions, comments or concerns.

Thank You.

Sincerely,

Camille M. Farrell
Environmental Protection Specialist
State Project Officer

Attachments

cc: Dan Scheppers, CDPHE



DRAFT

**Colorado Department
of Public Health
and Environment**

**Animas Discovery Report
Upper Animas River Basin**

**Prepared by
Camille M. Farrell**

**Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
Preliminary Assessment/Site Investigation Program**

May, 1995

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1.0 INTRODUCTION

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, responds to threats posed by uncontrolled releases of hazardous substances into the environment. CERCLA assesses the relative degree of risk to human health and the environment posed by sites, and establishes criteria for determining priorities among releases or threatened releases of hazardous substances for the purpose of taking remedial action.

The U.S. Environmental Protection Agency (EPA) uses a structured program to determine appropriate response for Superfund sites: the site assessment phase identifies sites for the National Priorities List (NPL); whereas the remedial phase determines the extent of contamination and implements cleanup of the remedies.

The Site Assessment Phase of the Superfund Process is comprised of: discovery; entry into CERCLIS; Preliminary Assessment; and Site Investigations. The primary objective of the site assessment phase is to obtain data necessary to identify the highest priority sites posing threats to human health and the environment. The site assessment phase begins with discovery, or notification to EPA of possible releases of hazardous substances (EPA, 1992(a)).

Pursuant to the Colorado Department of Public Health and Environment's (CDPHE) Support Agency Workplan for Fiscal Year 1995, the CDPHE has committed to review and summarize existing heavy metal source data in the Upper Animas River Basin, (in and around Silverton, Colorado) to determine sites or geographic regions which may need to be addressed via the Site Assessment program.

In addition to summarizing the heavy metal source data, this report evaluates the usability of existing CDPHE data for EPA site assessment screening requirements, provides the status of water quality improvement efforts currently being conducted by various federal, state and local agencies and environmental, mining and local interests, in the Upper Animas Basin.

2.0 OBJECTIVES

It is the objective of this report to:

- 1) identify sources contributing heavy metal contamination to the environment;
- 2) identify entities willing to implement remedial activities to mitigate the release of heavy metals to the environment; and,
- 3) identify those areas for which there are currently no entities willing to implement remediation, thereby recommending sites or geographic regions which may need to be addressed by the EPA Site Assessment program.

Drainage Areas Formation Thickness and Associated Area			
Drainage Basin	Formations or Rock Units	Thickness (FT)	Area (Sq. Miles)
	Cliff House, Menefee, Point Lookout Undiff.	300	16.75
	Dakota-Burro Canyon	200	30.45
	Morrison-Entrada Undiff.	300	142.6
	Granitic-Undiff.	1000	48.17

Water Quality Summary		
Rock Unit	Water Quality - TDS	Well Yield - gpm
San Jose	poor ² (500-2000)	1-10 ³
Animas	good to poor ² (500 - 2000)	2 ³
Nacimiento	poor ²	2 ²
Ojo Alamo	good to poor ²	2-5 ²
McDermott	poor ²	2 ²
Kirtland	poor ¹ (310-29,000) median 2300	(1-12) ¹ median 4
Fruitland	poor ¹ 2300	(1-12) ¹ median 4
Pictured Cliffs	poor ¹ (340-46,000) 6600	(1-20) ¹ median 1
Cliff House	poor ¹ (130-4400) 1700	(1-40) ¹ median 8
Menefee	poor ¹ (130-3300) 995	(1-55) ¹ median 13
Point Lookout	poor ¹ (150-3300) 690	(1-75) ¹ median 10
Dakota	good-poor ²	(1-50) ² 10
Morrison	good-poor ²	(1-50) ² 10

Water Quality Summary		
Rock Unit	Water Quality - TDS	Well Yield - gpm
Entrada	good-poor ²	(1-50) ² 10
Granitic Rocks	good ²	(1-100) ² 15
<ol style="list-style-type: none">1. USGS Hydrologic Investigations2. No supporting data3. USGS Water-Resources Investigations Report 92-4188		

APPENDIX B

ALTERNATIVES CONSIDERED AND ADVISORY TEAM REVIEW

Alternative Dam/Reservoir Sites Considered by the Advisory From 1974-1977								
No.	Site	Constr. Cost/AF (1972)	Tech Avail?	Max (1000 AF)	Sufficient?	Reliable Supply?	Avail to Proj Part?	Other Significant Impacts?
1	Howardsville	\$133	Yes	135.0	No	Yes	Yes	Conveyance
2	Mancos River	\$260	Yes	88.0	No	No	No	Water Quality, Cultural
3	Hay Gulch	\$299	Yes	53.0	No	No	Yes	Conveyance
4	Ute Meadows	\$123	Yes	16.5	No	Yes	Yes	Conveyance
5	Animas Mt 1 & 2	\$296	Yes	17.0	No	Yes	Yes	Subdivision
6	Baker's Bridge	\$2,593	Yes	3.0	No	Yes	Yes	Dewater Animas Scenic Area
7	Silverton	\$1,352	Yes	90.0	No	Yes	Yes	Flood Silverton, RR
8	Stateline	\$646	Yes	17.2	No	No	Yes	Agricultural Lands
9	Animas	\$320	Yes	100.0	No	Yes	Yes	Riparian, Homes, RR, Roads
10	Hesperus	\$590	Yes	23.7	No	No	Yes	Hwy 160
11	Thompson Park	\$315	Yes	12.0	No	No	Yes	
12	Gold Bar	\$514	Yes	12.0	No	Yes	Yes	Ski Area, Hwy 50
13	Red Mesa Enlargement	\$589	Yes	3.6	No	No	Yes	
14	La Plata #1	\$878	Yes	13.0	No	No	Yes	Hwy 300
15	Long Hollow	\$459	Yes	14.0	No	No	Yes	Conveyance
16	Ridges Basin	\$76	Yes	190.0	Yes	Yes	Yes	Gas Pipeline, Wetlands, Big Game
17	McDermott	\$1,095	Yes	8.6	No	Yes	Yes	
18	Eldredge Ranch	\$609	Yes	12.5	No	Yes	Yes	
19	Bondad	\$673	Yes	289.4	Yes	Yes	Yes	11 mi Riparian, Hwy 550, RR, Gas wells, ag
20	Cedar Hill	\$554	Yes	101.5	No	Yes	Yes	6 mi Riparian zone, RR, Gas wells, ag land
21	Teft	\$945	Yes	82.5	No	Yes	Yes	RR, Scenic River, Conveyance
22	Purgatory	\$1,214	Yes	276.6	Yes	Yes	Yes	Conveyance, Scenic Area
23	Needleton	\$1,618	No	86.0	No	Yes	Yes	RR, Scenic Area
24	Hermosa Park #1		Yes	75.9	No	Yes	Yes	USFS roadless area, Scenic, Wildlife
25	Hermosa Park #2		Yes	77.6	No	Yes	Yes	USFS roadless area, Scenic, Wildlife
26	Hermosa Park #3		Yes	67.7	No	Yes	Yes	USFS roadless area, Scenic, Wildlife
27	Hermosa Park #4		Yes	101.5	No	Yes	Yes	USFS roadless area, Scenic, Wildlife
28	Lime Creek #1	\$3,173	Yes	3.4	No	Yes	Yes	Scenic Area
29	Lime Creek #2	\$740	Yes	39.2	No	Yes	Yes	Scenic Area
30	Lime Creek #3	\$460	Yes	39.2	No	Yes	Yes	Scenic Area
31	Lime Creek #4	\$411	Yes	36.5	No	Yes	Yes	Scenic Area
32	Three Buttes	\$328	Yes	70.0	No	No	No	Location, conveyance
33	Elk Creek		Yes	10.0	No	Yes	Yes	Access, Roadless area
34	Cement Creek		Yes	7.0	No	Yes	Yes	Water Quality
35	Elbert Creek		Yes			Yes	Yes	Recirculating reservoir for Electra
36	Hermosa Creek #1		Yes	12.0	No	Yes	Yes	2.5 mi Riparian zone, Scenic area
37	Hermosa Creek #2		Yes			Yes	Yes	
38	Mayday #1, #2	\$580	Yes	3.2	No	Yes	Yes	

ALTERNATIVES CONSIDERED AND ADVISORY TEAM REVIEW

Alternative Dam/Reservoir Sites Considered by the Advisory From 1974-1977								
No.	Site	Consrt. Cost/AF (1972)	Tech Avail?	Max (1000 AF)	Sufficient?	Reliable Supply?	Avail to Proj Part?	Other Significant Impacts?
39	Dry Fork		Yes	6.0	No	Yes	Yes	
40	Dry Gulch		Yes			Yes	Yes	
41	Falls Creek		Yes	2.5	No	Yes	Yes	Scenic area
42	Cox Canyon #1		Yes	11.0	No	No	Yes	Oil and Gas
43	Cotton Wood Canyon		Yes	45.0	No	No	Yes	Oil and Gas
44	Cox Canyon #2		Yes	65.0	No	No	No	Location, conveyance
45	Aztec	\$516	Yes	35.1	No	Yes	Yes	
46	Haviland Lake Enlargement	\$664	Yes	53.0	No	Yes	Yes	Scenic area, Hwy 160, Recreation
47	Junction Creek #1	\$768	Yes	12.1	No	Yes	Yes	Roadless Area
48	Junction Creek #2	\$1,161	Yes	6.4	No	Yes	Yes	Roadless Area
49	Parrott	\$697	Yes	52.2	No	No	Yes	Scenic Area
50	High Flume A	\$295	No	13.6	No	Yes	Yes	Unstable dam foundations
51	High Flume B	\$388	No	10.0	No	Yes	Yes	Unstable dam foundations
52	High Flume C	\$450	No	10.0	No	Yes	Yes	Unstable dam foundations
53	Lewis Creek	\$253	Yes	17.6	No	No	Yes	Cultural
54	Harrison	\$151	Yes	25.7	No	No	Yes	
55	Upper Animal Valley	\$348	Yes	60.4	No	Yes	Yes	Airstrip
56	Government Draw	\$361	Yes	8.0	No	No	Yes	
57	Baldy		Yes		No	No	Yes	

Symposium

Acid Mine Drainage Problems and Solutions

June 16 - June 18, 1997

**Purgatory Village Hotel
Durango, Colorado**

The program will include identification and implementation methods used in improving water quality at abandoned and inactive mine sites.

Topics include:

- ◆ Site characterization of problems
- ◆ Hydrologic Controls
- ◆ Passive and Active Treatments
- ◆ Field trip of the Upper Animas River: Problems and Solutions

Speakers include: Dr. Andrew Robertson, Robertson GeoConsultants; James Gusek, Knight Piesold; Jim Herron, Colorado Division of Minerals and Geology; and others.

Cost: \$35.00 -- includes, lunches, breaks, field trip and symposium handouts.
(Scholarships available) This symposium is scheduled to begin on Monday afternoon and conclude on Wednesday with a field trip.

Sponsored by: Colorado Division of Minerals And Geology, Environmental Protection Agency Region VIII, Colorado Department of Health, Animas River Stakeholders Group

For more information:

**Anne Clift c/o Leah Banks
Colorado Division of Minerals and Geology
1313 Sherman Street, Room 215
Denver, CO 80203
(303) 866-3913 FAX: (303) 832-8106
E-mail: clift@bend.madriver.com**



May 21, 1997

Robert Frodeman
Department of Philosophy
Fort Lewis College
Durango, CO 81301

Dear Professor Frodeman:

I enjoyed meeting you at the Animas River Stakeholders Group meeting in Silverton last week and look forward to seeing you and your students again this summer sampling season.

I have asked our toxicologist, Gerry Henningsen, to send you information about environmental risk and EPA Superfund policy for taking remedial action when risk thresholds exceed specified limits to individuals or wildlife populations. These materials may supplement other literature for your interesting course.

I have enclosed a copy of our policy to defer listing sites for Superfund action while states and local stakeholder groups take responsibility for equivalent response actions. I hope this helps you and you can always access our homepage and browse among those databases.

Regards,

Jim Hanley
Project Manager

cy: Gerry Henningsen
Carol Russell

**ANIMAS RIVER STAKEHOLDERS GROUP
MEETING**

Proposed Agenda

Facilitator: Sara Staber

259-0238

When: 6:00 PM, May 15, 1997

Where: Silverton School Music Room, 12th and Reese Street, Silverton.

Topics:

OLD BUSINESS

6:00 Review and approve minutes of last meeting; changes or additions to agenda, announcements

6:10 Report on Feasibility, Monitoring, Biology, and Regulatory Work Groups Staber, vonGuerard, Horn, Fearn

7:10 Coordinator's report

Simon

-funding

-SWWCD water fair

7:30 Break

NEW BUSINESS

7:40 Call for Matching Hours

7:45 Draft comments to WQCC rule making hearing

-request for delay of implementation of goal based stream standard

8:00 Water Quality Control Division Restructuring

Greg Parsons

8:20 Fishing is Fun- DOW program

8:35 SJRC&D grant writing seminar

8:40 Selection of facilitator and topics for text meeting

**ANIMAS RIVER STAKEHOLDERS
MONITORING WORK GROUP MEETING**
Proposed Agenda

When: 2:00PM, May 14, 1997

Where: Miner's Union Hospital, basement conference room, Silverton

Topics:

2:00 discussion of issues related to the Church and Kimball paper

-implications of the conclusions

-colloid toxicity/bioavailability/bioaccumulation

2:45 results of Cement Creek tracer study

Kimball

3:00 BWG report

-biomonitoring

Horn

-LFA

Gerhardt

-RFP

Gerhardt

-Del Nimmo's toxicity tests

Simon

3:30 Need for synoptic water quality sampling at A73, A74

3:40 Need for synoptic water quality sampling between Eureka
and A68 to monitor remediation and anticipate sampling needs
for 1998.

4:00 Mine dump sampling

**ANIMAS RIVER STAKEHOLDERS
MONITORING WORK GROUP MEETING**
Proposed Agenda

When: 2:00PM, May 14, 1997

Where: Miner's Union Hospital, basement conference room, Silverton

Topics:

2:00 discussion of issues related to the Church and Kimball paper

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Simon

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3:40 Need for synoptic water quality sampling between Eureka
and A68 to monitor remediation and anticipate sampling needs
for 1998.

4:00 Mine dump sampling

**ANIMAS RIVER STAKEHOLDERS
FEASIBILITY WORK GROUP MEETING**
Proposed Agenda

When: 8:30 AM, May 15, 1997

Where: Miner's Union Hospital, basement conference room, Silverton

Topics:

8:30 1997 tracer study prioritization *Kimball*

9:15 Upper Animas characterization *Krabacher*
-lead role
-tasks
-additional possibilities

9:45 EPA/CDPHE report on Cement creek study *Farrell*

10:00 Forest Service site prioritization - scheduling

10:10 Cement Creek site prioritization process- scheduling

10:10 319 Projects *Simon, Krabacher*
Fly Ash treatment of mine dump-demo site
- prioritization for demonstration treatment
- TMDL concept

10:45 Break

11:00 Regulatory Work Group (see that agenda)

**ANIMAS RIVER STAKEHOLDERS
REGULATORY WORK GROUP MEETING**
Proposed Agenda

When: 11:00 AM, May 15, 1997

Where: Miner's Union Hospital, basement conference room, Silverton

Topics:

11:00 Rule making hearing--preparations for presentation
I'earn

11:30 Good Samaritan Provision *Butler*
- Colorado Salinity Control Act
- SMACRA type pilot project

12:00 or later--- Break for lunch

ANIMAS RIVER STAKEHOLDERS GROUP MEETING

Proposed Agenda

Facilitator: Sara Staber

259-0238

When: 6:00 PM, May 15, 1997

Where: Silverton School Music Room, 12th and Reese Street, Silverton.

Topics:

OLD BUSINESS

6:00 Review and approve minutes of last meeting; changes or additions to agenda, announcements

6:10 Report on Feasibility, Monitoring, Biology, and Regulatory Work Groups *Staber, vonGuerard, Horn, Fearn*

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-funding
-SWWCD water fair

7:30 Break

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7:40 Call for Matching Hours

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-request for delay of implementation of goal based stream standard

8:00 Water Quality Control Division Restructuring

Greg Parsons

8:20 Fishing is Fun- DOW program

8:35 SJRC&D grant writing seminar

8:40 Selection of facilitator and topics for next meeting

ALP DEPLETIONS @ BLUFF

Modeled Annual Depletions vs 57,100 AF

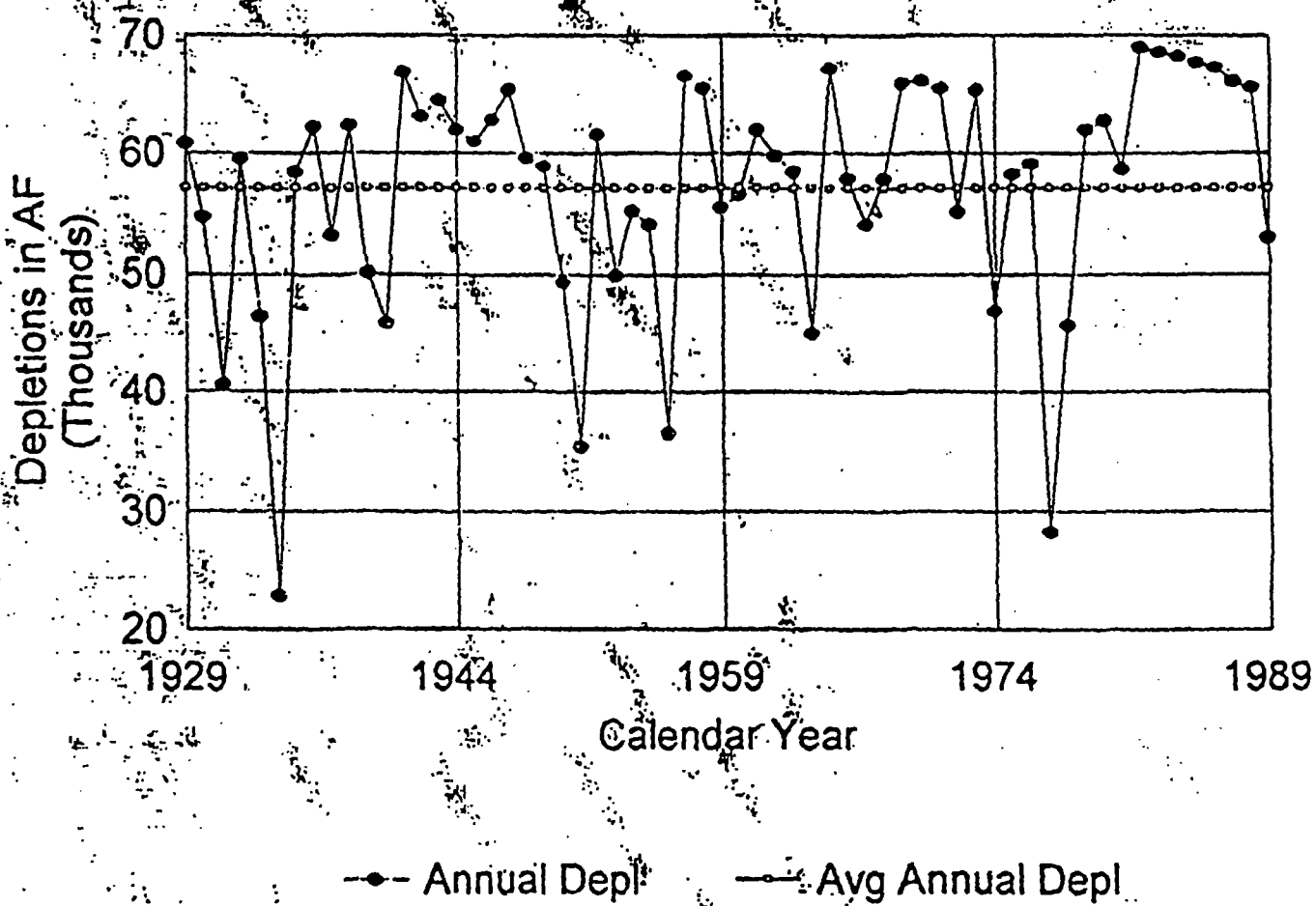
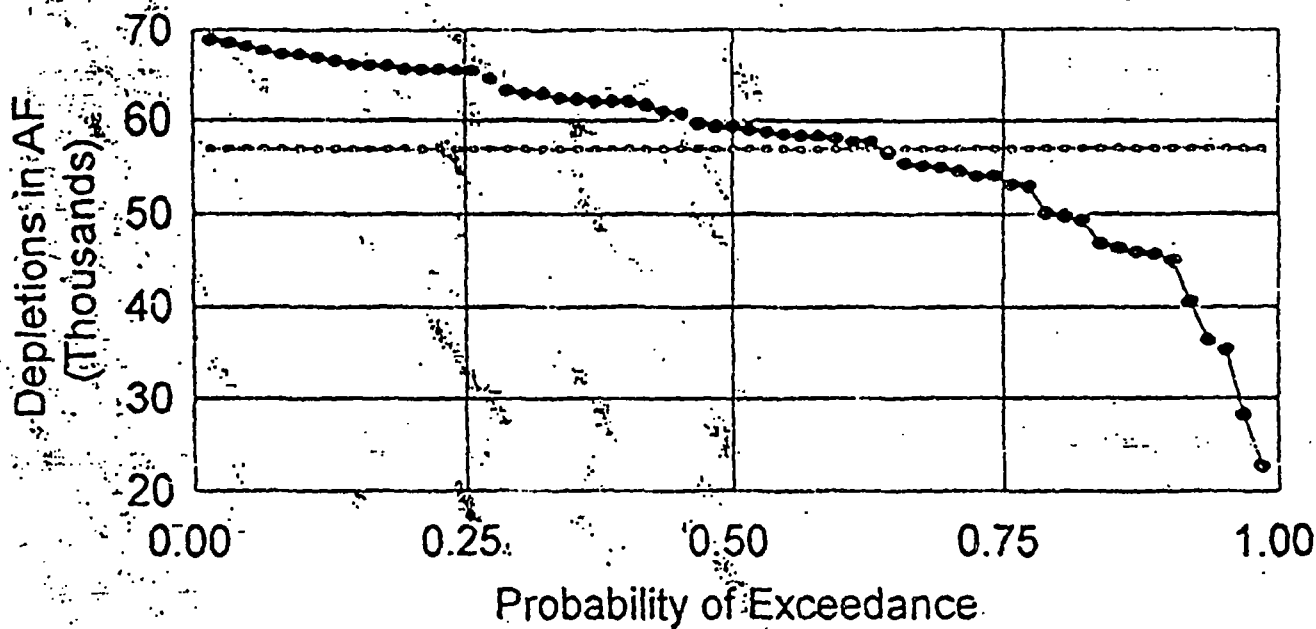


FIGURE 21

ALP DEPLETIONS @ BLUFF

Modeled Annual Depletions vs 57,100 AF



—●— Annual Depletion

—○— Avg Annual Depletion